

### **REMARKS**

Applicant appreciates the Examiner's attention to this application.

This response amends claim 27 to correct the preamble, in response to the objection to claim 27 in the Office Action. This response also cancels dependent claim 13 and amends each of the independent claims (i.e., claims 12, 22, 24, and 28) to include details like those originally recited in claim 13.

To the extent that the rejections in the Office Action might be applied to the pending claims, Applicant respectfully traverses. Reconsideration of the present application in view of the enclosed amendments and remarks is respectfully requested.

### **ARGUMENT**

The Office Action rejects all claims based on 35 U.S.C. § 103(a). Claims 12 and 14-29 are the pending claims. Claims 12, 22, 24, and 28 are the independent claims.

The Office Action rejects claims 12-16 and 18-29 under 35 U.S.C. § 103(a) as being unpatentable over U.S. patent no. 6,470,388 to Frederick Niemi et al. (hereinafter "Niemi"), in view of U.S. patent no. 6,145,099 to Keisuke Shindou (hereinafter "Shindou"). Applicant respectfully traverses those rejections.

The pending claims of the present application pertain to the use of cooperative execution with a debugging host, to debug a distributed software environment. Specifically, claim 12 involves a distributed software environment and a debugging host outside of the distributed software environment. When software programs in the distributed software environment execute, the distributed software environment generates event records, and forwards those event records to the debugging host. The debugging host uses the event records to provide "a simulation of the distributed software environment at the debugging host."

In addition, claim 12 recites that the debugging host simulates the distributed software environment "substantially simultaneously with execution of the ... software programs in the distributed software environment." Similarly, pending claims 22, 24,

and 28 involve a debugging host that receives event records from a distributed software environment, and simulates the distributed software environment “substantially simultaneously with execution of the ... software programs in the distributed software environment.”

Niemi involves a “centralized logging facility” that collects log records and related information from applications in a network (col. 3, line 61, through col. 4, line 33). An administrator may then “access and display the contents of the log file” (col. 13, lines 12-15). However, as recognized in the Office Action, this centralized logging facility does not provide a “simulation” of the applications in the network.

Shindou involves a system for debugging a target processing system, through use of a “probe unit” this is attached to the target system, and a “software simulator model” that is attached to the probe unit (Abstract). Specifically, the probe unit includes an input signal snoop unit and a trace memory. In response to detecting signals in the target system, the probe unit stores data signals in the trace memory. The software simulator model then obtains the “accumulated data signals from the trace memory” and carries out a simulation of the target system on the basis of the accumulated data signals obtained from the probe unit. (Col. 7, line 9 through col. 9, line 42.)

Neither Niemi nor Shindou discloses or suggests providing a simulation of a distributed software environment “substantially simultaneously with execution of the ... software programs in the distributed software environment,” as recited in claim 12. To the contrary, Shindou teaches that the simulation or debugging is based on accumulated data, and that simulation or debugging engine is actually initialized after an error has been detected in the target system. For example, col. 11, lines 8-22 of Shindou state the following:

3. The operation of the input signal snoop unit 2 is stopped when an event, such as malfunction, occurs.
4. All of the hysteresis kept in the trace memory 103 until that time point is transmitted to the host or the software simulator model 3.
5. All of the circuits in the software simulator model 3 are initialized by the use of the initial values which have been sent initially.

6. The software simulator model 3 is operated at every system clock.
7. Hysteresis information kept in the trace memory 103 is decoded to be inputted at every system clock.

Thus, according to Shindou, “the circuits in the software simulator model” are not even initialized to begin a simulation until after the snoop unit has stopped in response to an event such as a “malfunction” in the target system. Consequently, Shindou actually teaches away from providing a simulation of a distributed software environment “substantially simultaneously with execution of the ... software programs in the distributed software environment.”

The Office Action asserts that Niemi discloses (at col. 15, lines 38-48) the feature of providing a simulation substantially simultaneously with execution of the programs under scrutiny. However, as indicated above and recognized in the Office Action, Niemi does not disclose providing a simulation of a distributed software environment at a debugging host. Niemi pertains to a centralized logging facility, but that facility does not provide a “simulation” of a distributed software environment.

Moreover, col. 15, lines 38-48, do not disclose providing a simulation “substantially simultaneously” with execution of the programs under scrutiny. Instead, that portion of Niemi simply states that “debug objects” can be turned off to conserve bandwidth between the program being logged and the central logging facility. According to Niemi, log records may be received at a centralized logging facility and saved in a log file (col. 11, line 66 through col. 12, line 9). It seems likely that those log records could be recorded substantially simultaneously with execution of the programs under scrutiny. Similarly, the data signals in Shindou seem to be recorded in the trace memory substantially simultaneously with execution of a program under scrutiny.

However, recording a trace signal or a log record is not the same thing as providing a simulation. Claim 12 specifically recites the operation of “simulating the distributed software environment at the debugging host substantially simultaneously with execution of the ... software programs in the distributed software environment” (emphasis added). Neither Niemi nor Shindou discloses or suggests simulating a

distributed software environment “substantially simultaneously” with execution of the programs under scrutiny.

Consequently, even if Shindou and Niemi were to be combined, the combination would not render claim 12 unpatentable. Likewise, since claims 22, 24, and 28 also involve simulation of a distributed software environment “substantially simultaneously with execution of the ... software programs in the distributed software environment,” a combination of Shindou and Niemi would not render claims 22, 24, and 28 unpatentable.

The Office Action therefore fails to make out a *prima facie* case of obviousness for independent claims 12, 22, 24, and 28. Also, the dependent claims implicitly include the features of their respective parent claims.

For these and other reasons, all pending claims are allowable.

**CONCLUSION**

In view of the foregoing, claims 12 and 14-29 are all in condition for allowance.

If the Examiner has any questions, the Examiner is invited to contact the undersigned at (512) 732-3927. Early issuance of Notice of Allowance is respectfully requested.

Respectfully submitted,

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